



ABSTRACT OF THE DISCLOSURE

A sintered ceramic composite lead has a super conductive nano-architecture including a physical-chemical phase composition consisting of nano-size superconductor ceramic grains composed of crystals and forming a base phase elements, additional phase elements, further phase elements and impurities, and a three dimensional grain-cell nano-structure comprising a network and consisting of crystals with C-axes oriented perpendicular to a direction of an electric current flux, with crystal grains uniformly aligned in A-B crystallographic planes, wherein the additional phase elements and the further phase elements cage and frame the nano-size super conductor ceramic and form nano-size cells.